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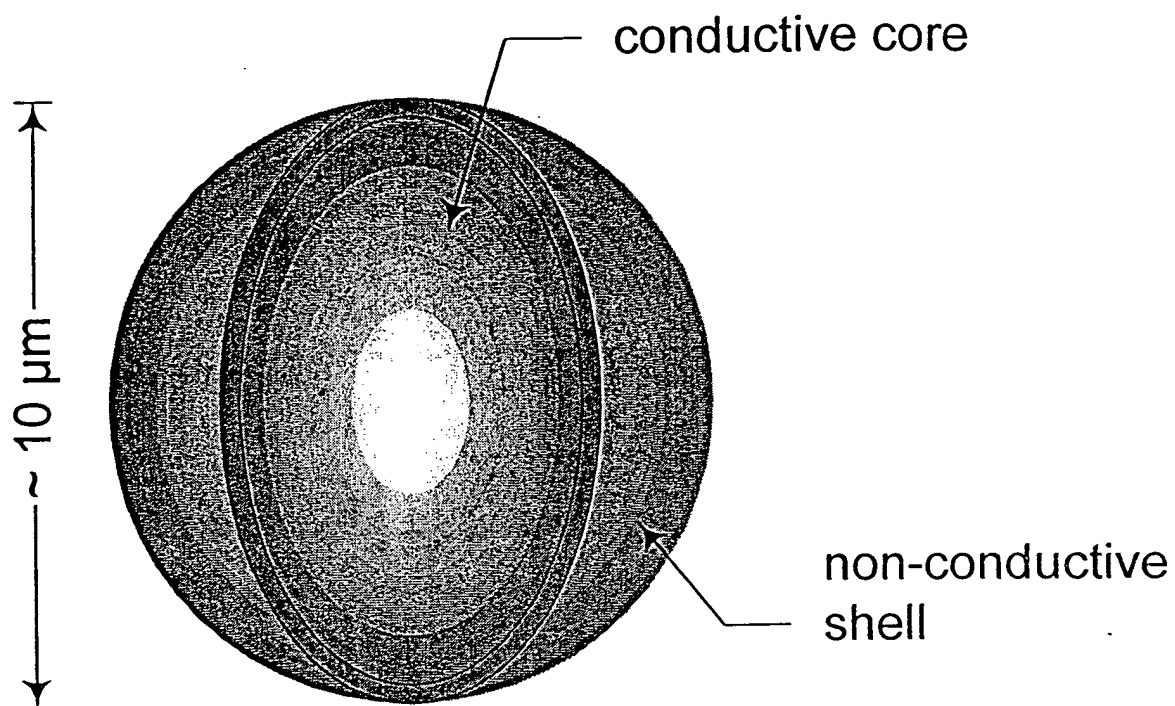
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Figure 1



2025-07-24 14:00:00

Figure 2

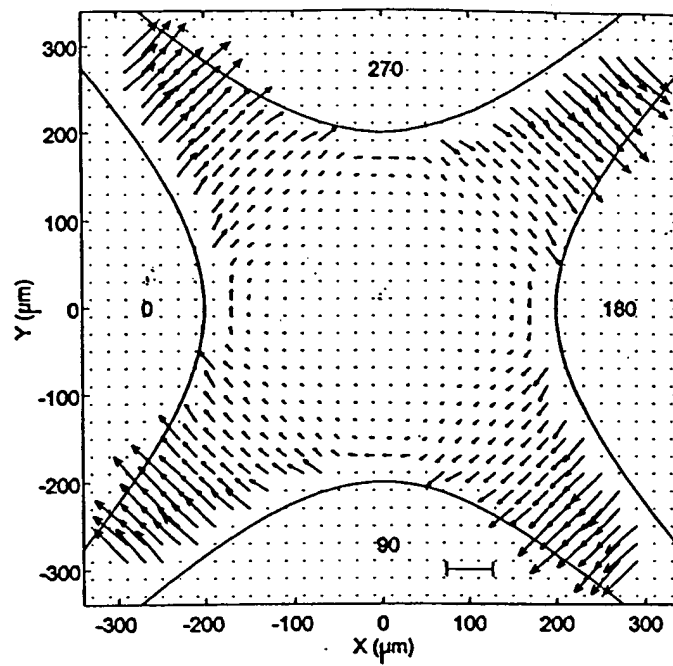
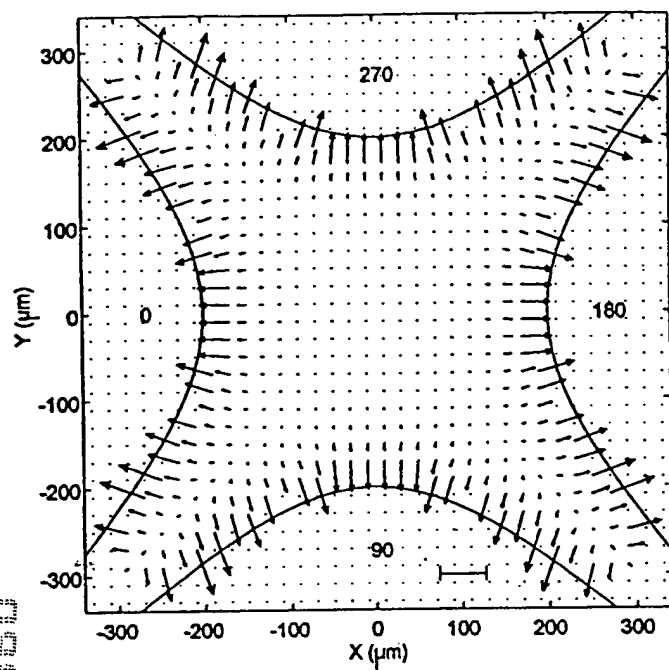


Figure 3

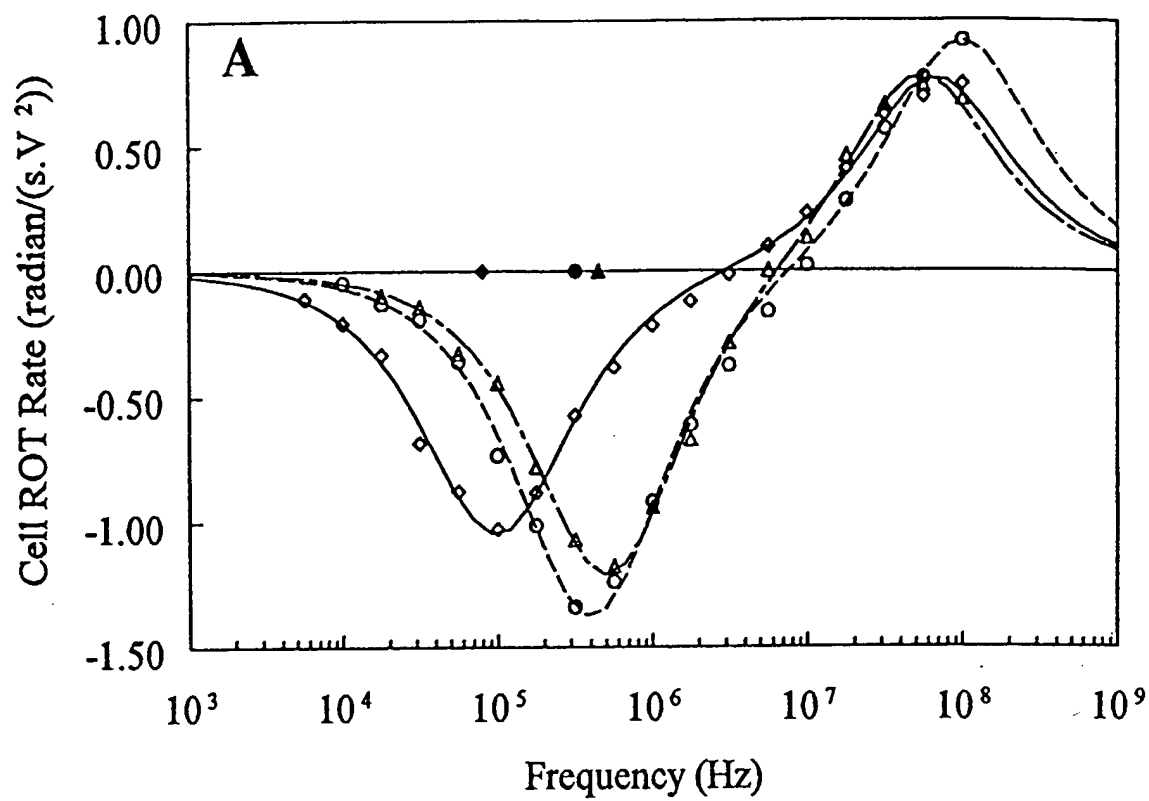


Figure 4

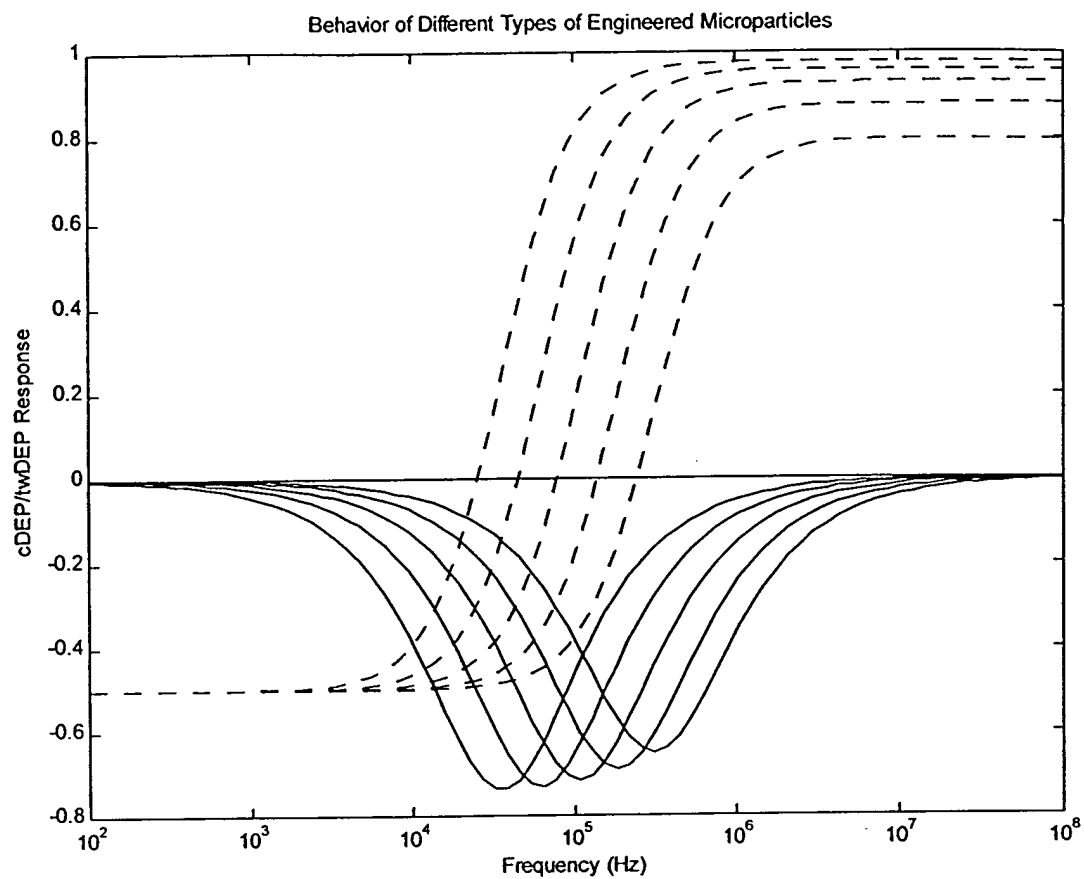


Figure 5

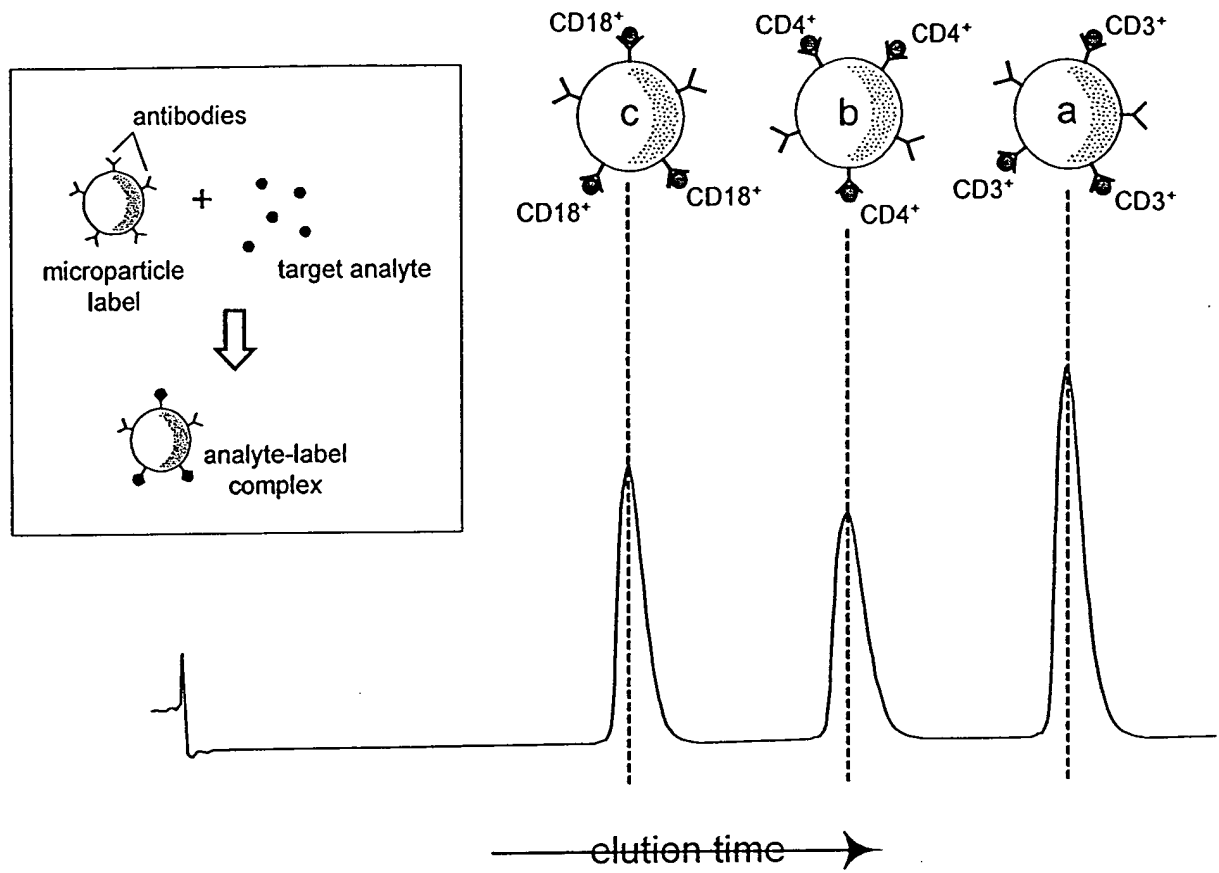


Figure 6

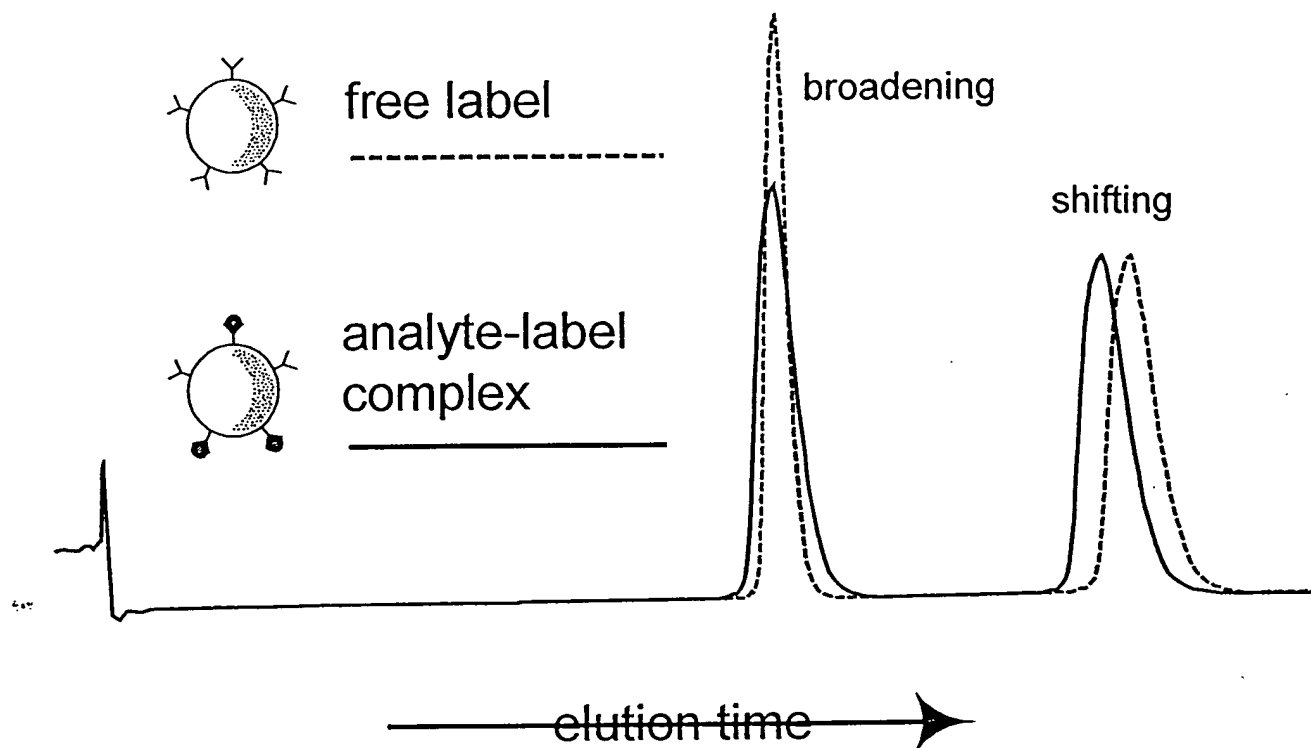


Figure 7

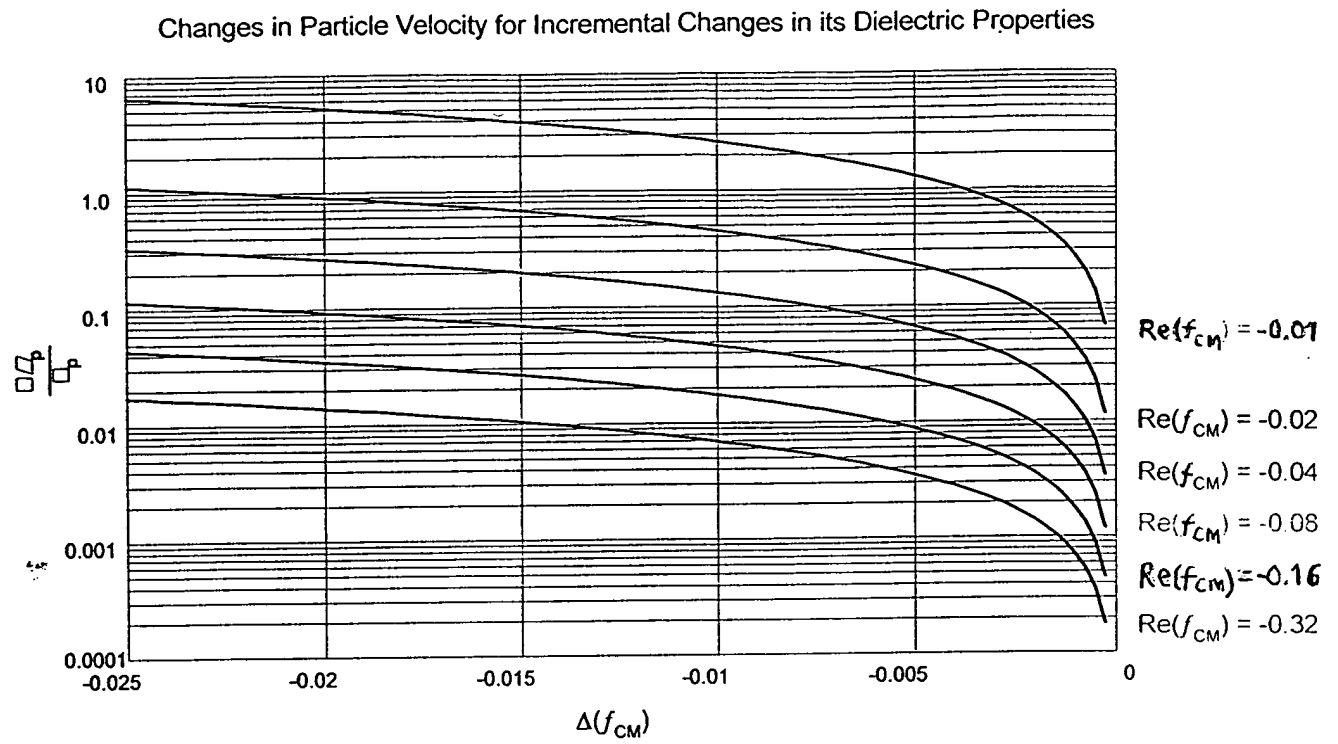
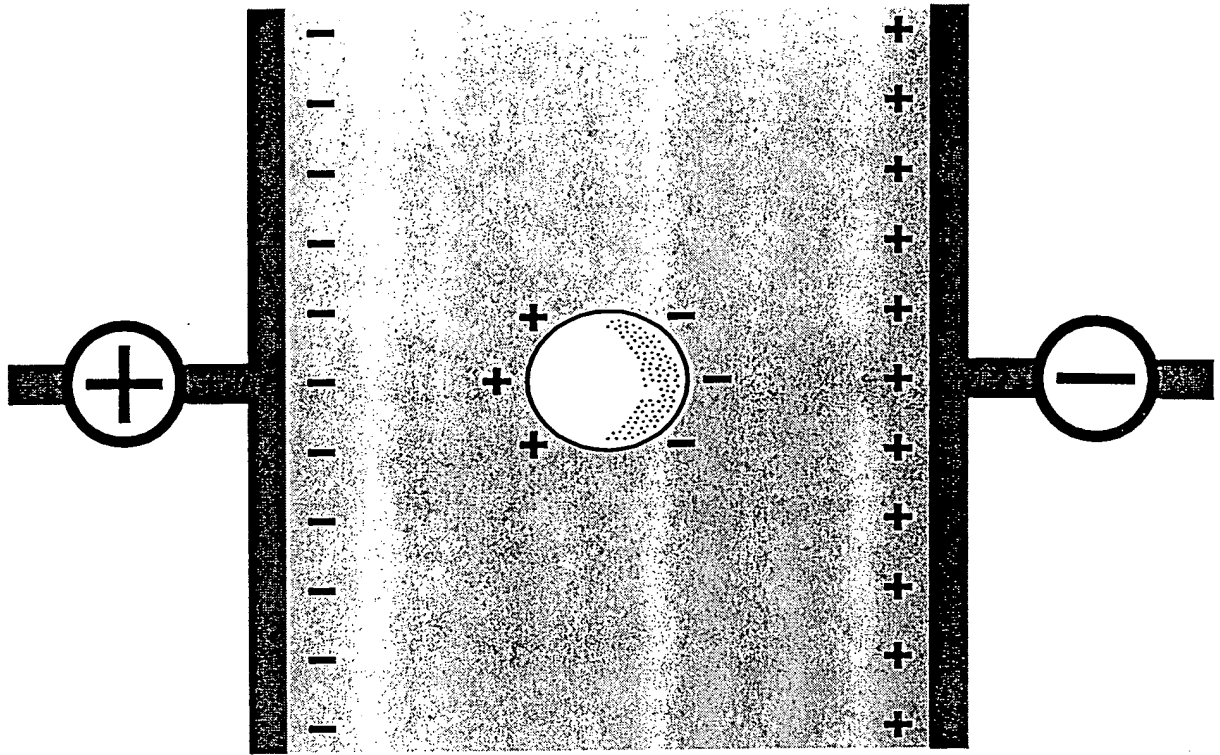




Figure 8



2025-01-14 14:30:00

$$\sigma_{\text{medium}} = 0.01 \text{ S/m}$$

$$\epsilon_{\text{medium}} = 78 \times \epsilon_0$$

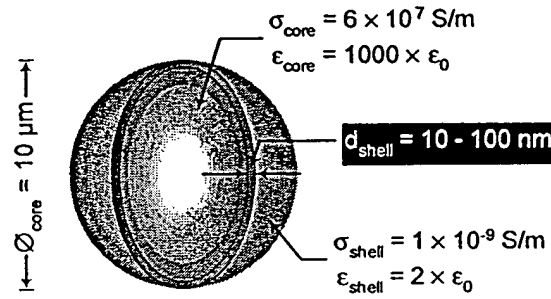


FIG. 9A

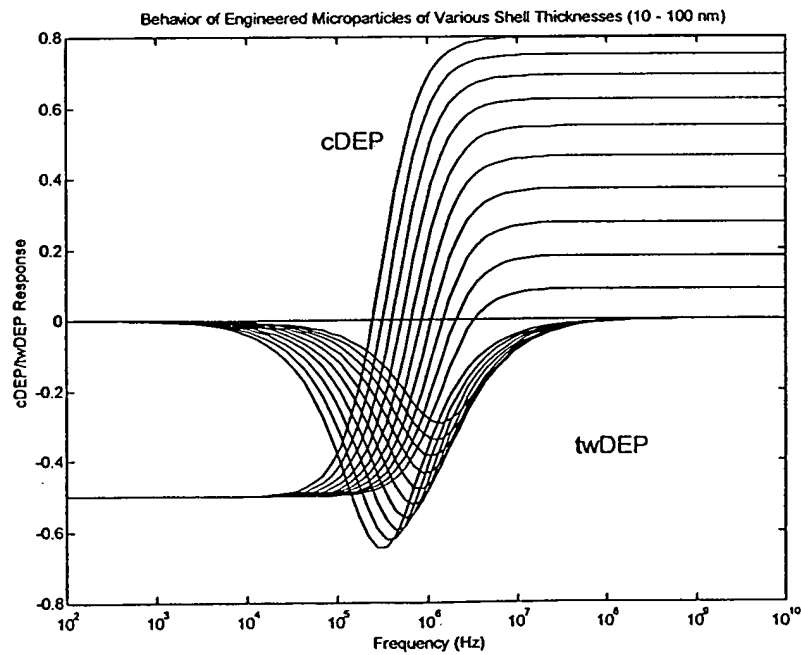


FIG. 9B

$$\sigma_{\text{medium}} = 0.01 \text{ S/m}$$

$$\epsilon_{\text{medium}} = 78 \times \epsilon_0$$

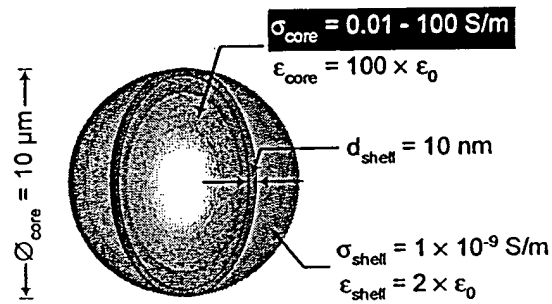


FIG. 10A

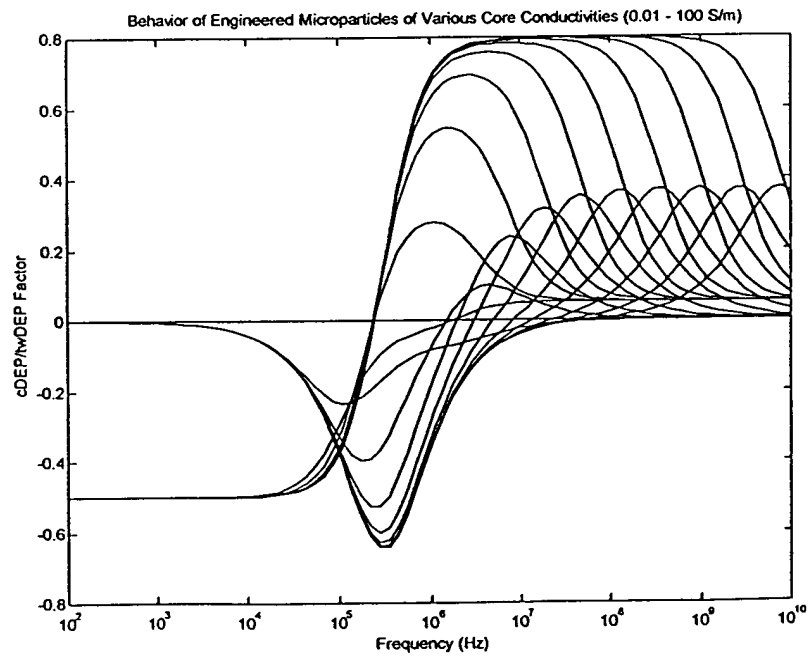
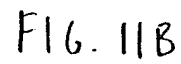
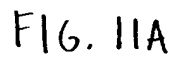


FIG. 10B

[illegible]

$$\sigma_{\text{medium}} = 0.01 \text{ S/m}$$

$$\epsilon_{\text{medium}} = 78 \times \epsilon_0$$

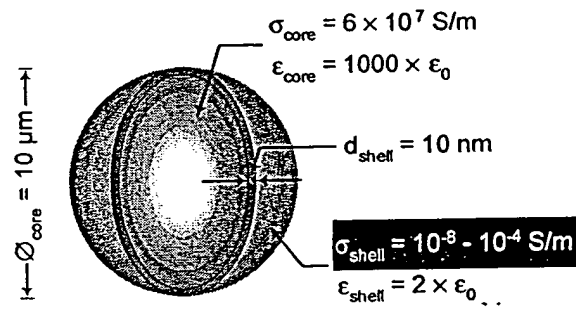


FIG. 12A

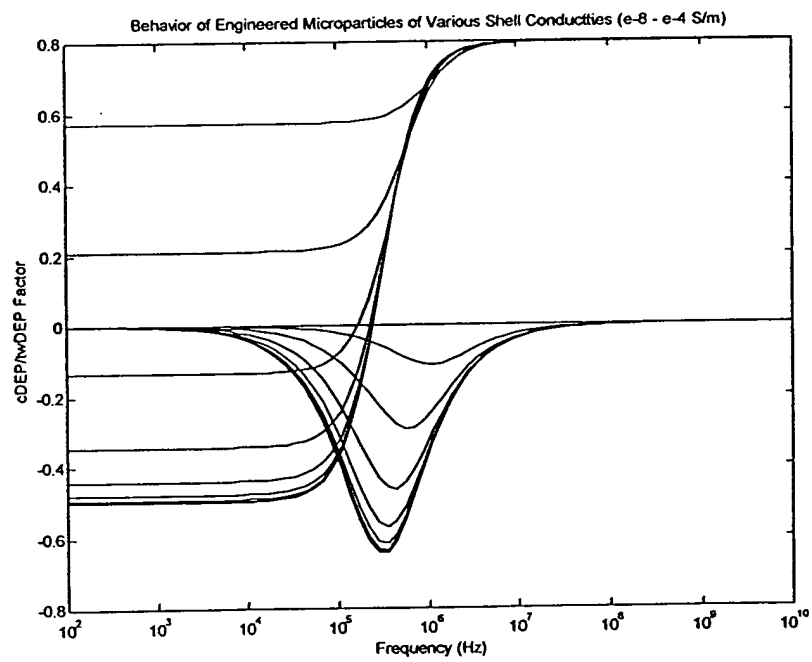


FIG. 12B

$$\sigma_{\text{medium}} = 0.01 \text{ S/m}$$

$$\epsilon_{\text{medium}} = 78 \times \epsilon_0$$

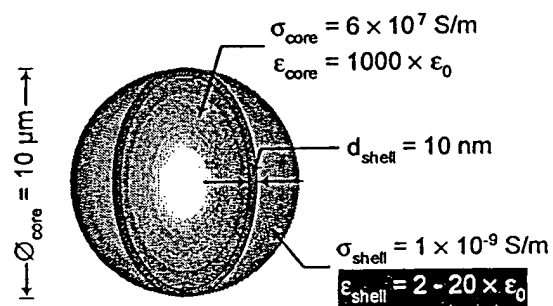


FIG. 13A

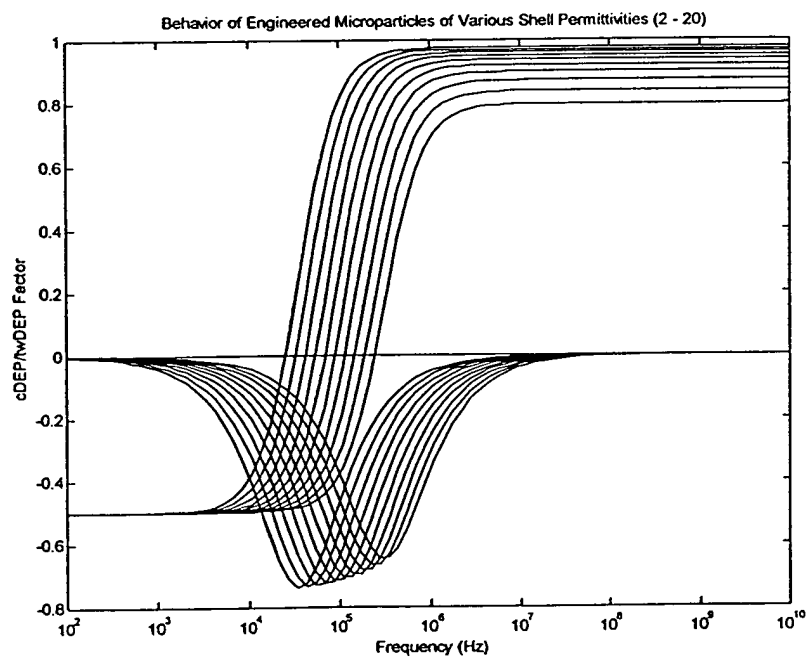


FIG. 13B

$$\sigma_{\text{medium}} = 0.01 - 10 \text{ S/m}$$

$$\epsilon_{\text{medium}} = 78 \times \epsilon_0$$

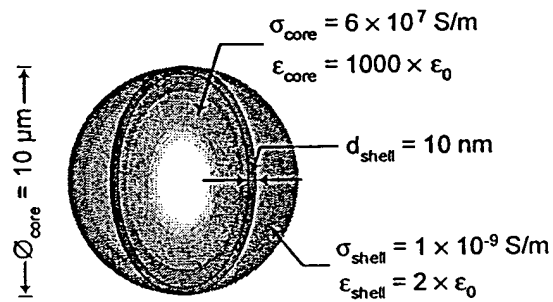


FIG. 14A

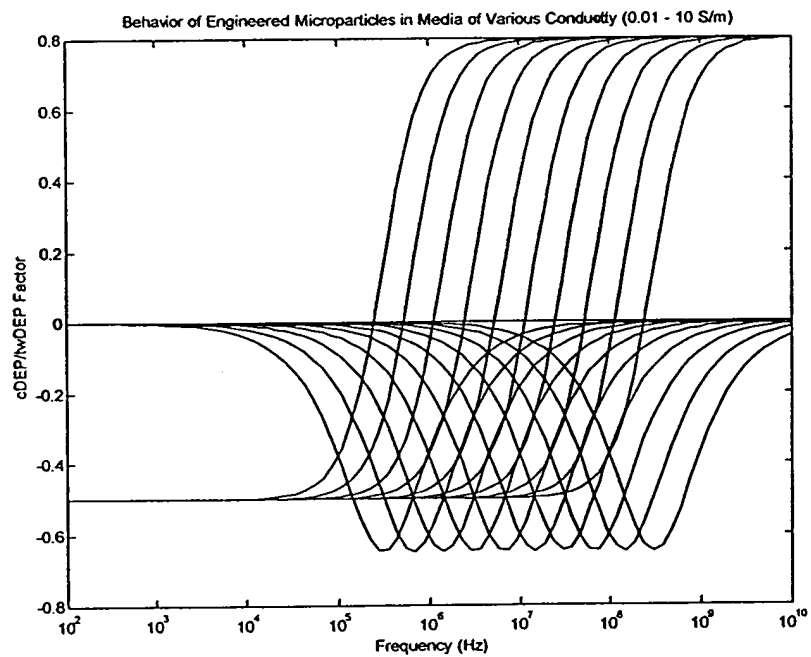


FIG. 14B

$$\sigma_{\text{medium}} = 0.01 \text{ S/m}$$

$$\epsilon_{\text{medium}} = 2 - 200 \times \epsilon_0$$

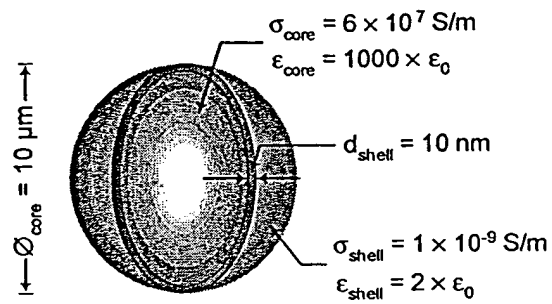


FIG. 15A

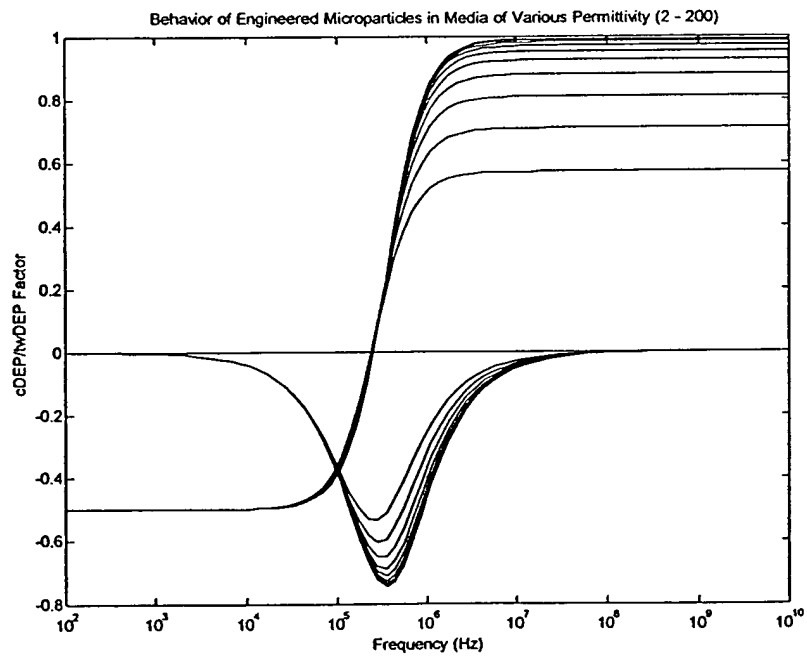
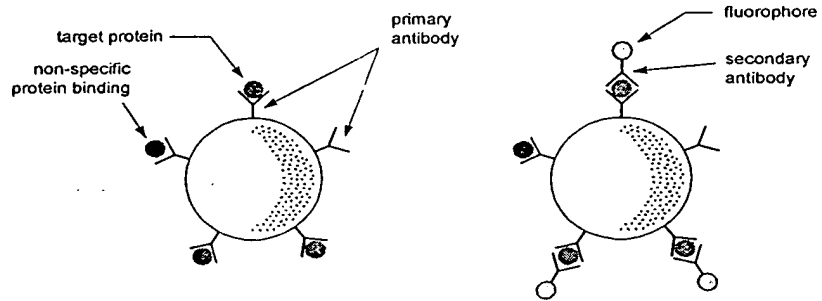


FIG. 15B



### 1. Protein Detection



### 2. mRNA Detection

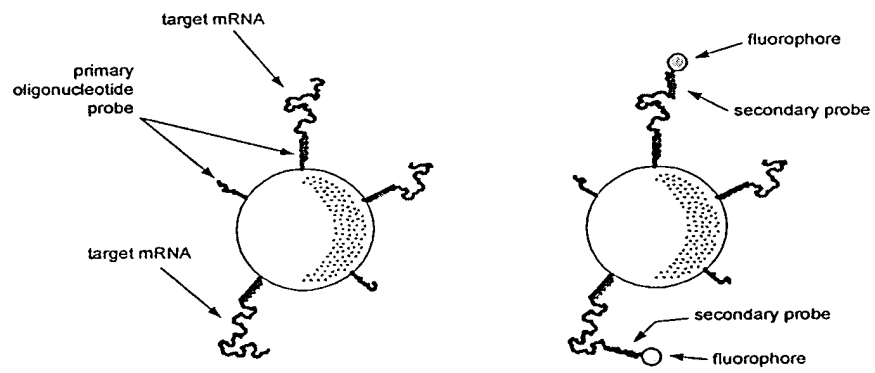


FIG. 16

## single layer version

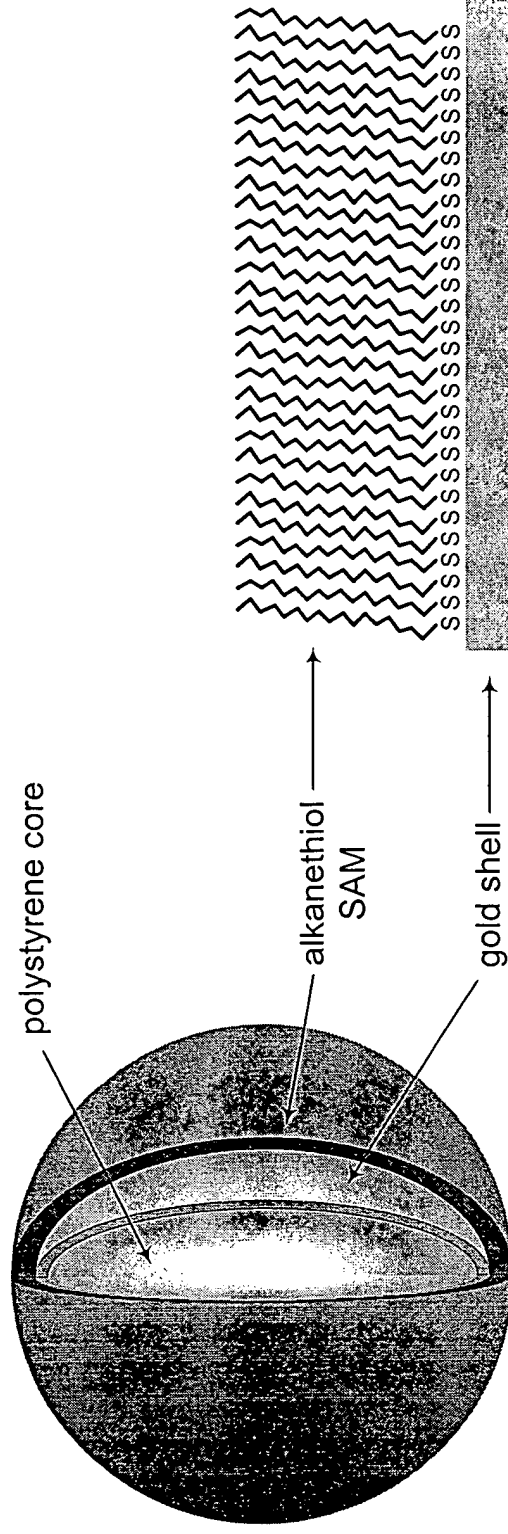


FIG. 17

## double layer version

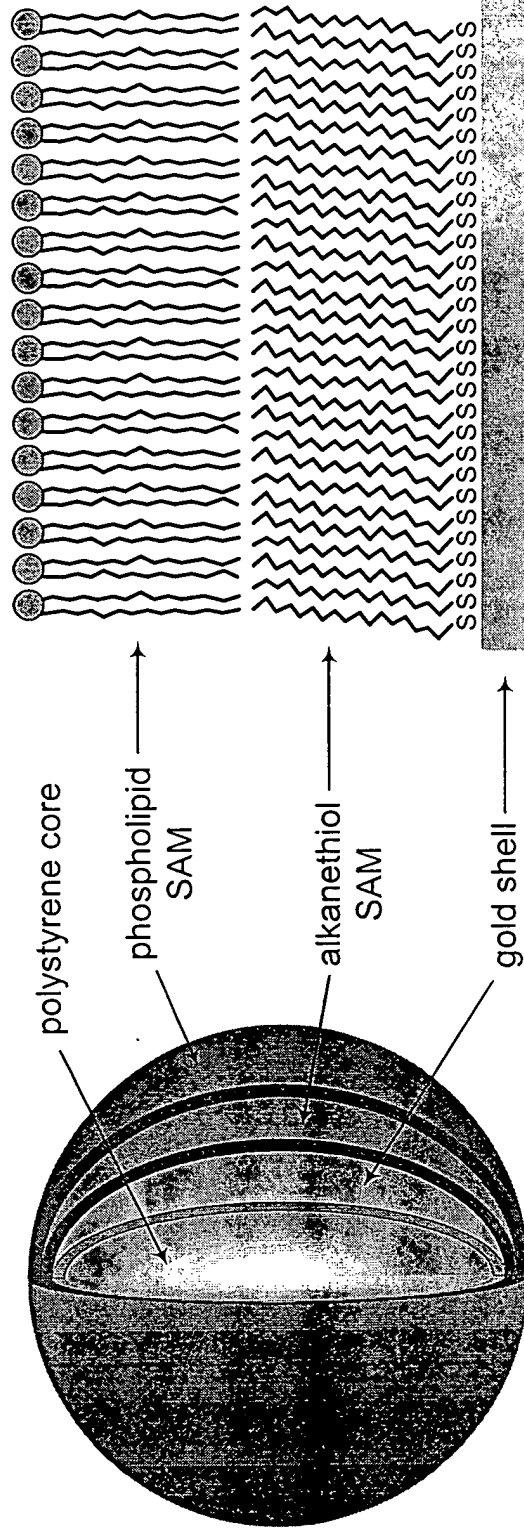


Fig. 18

## cross-linked double layer version

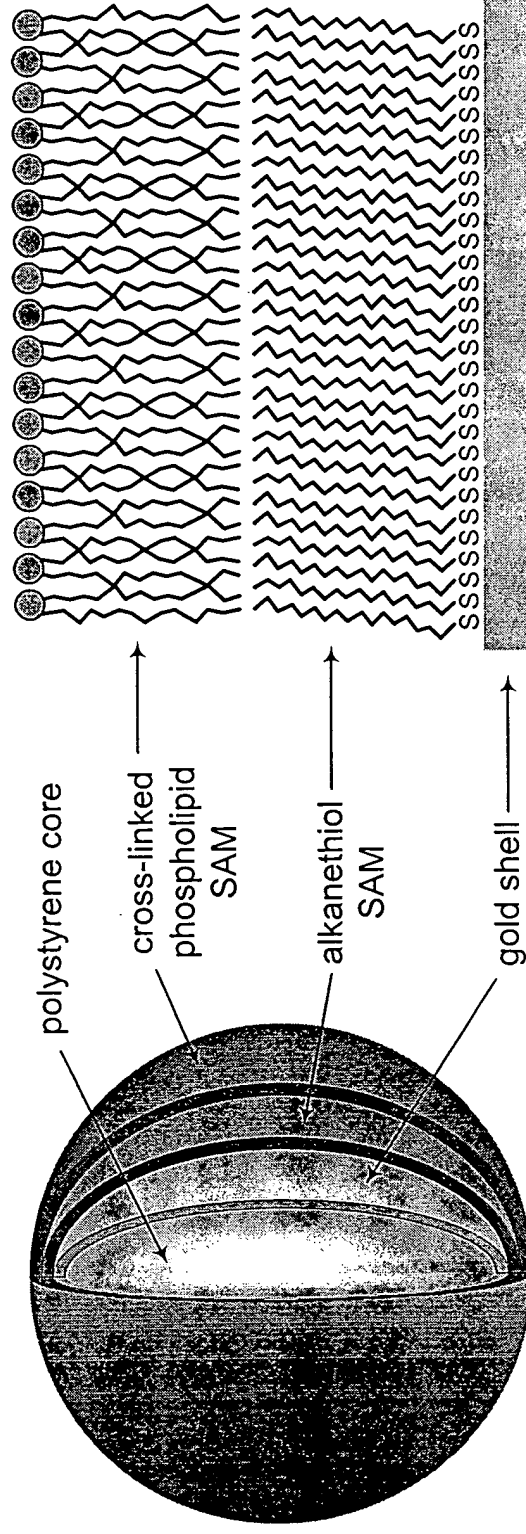


FIG. 19



# double layer version with protein recognition element

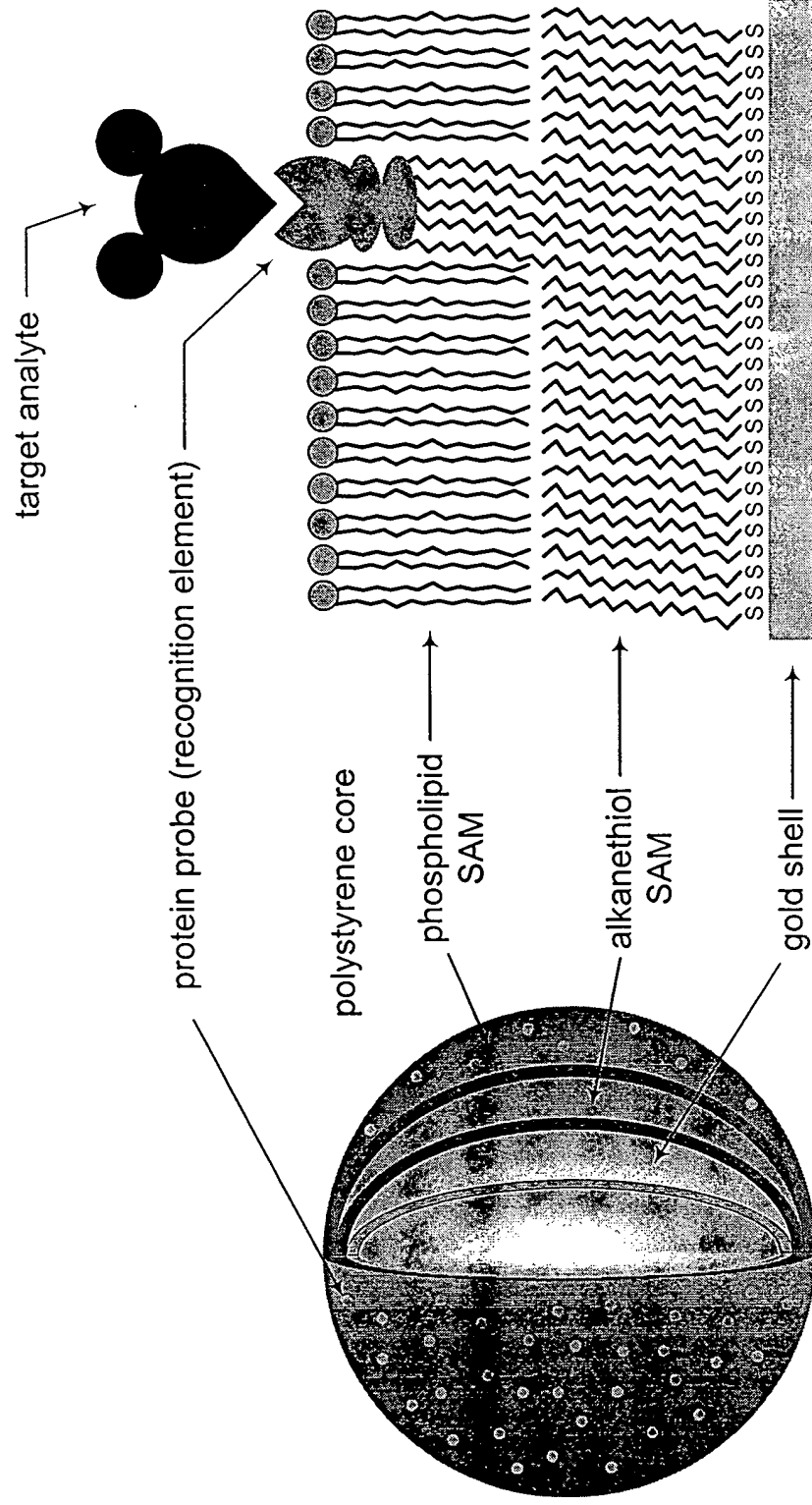


FIG. 21

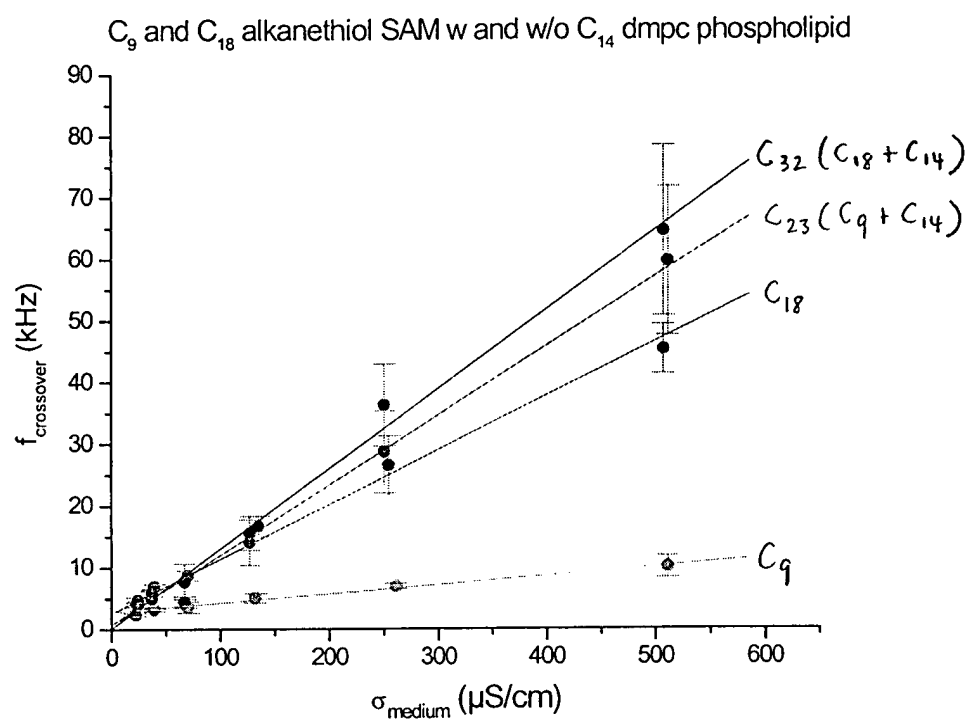


FIG. 22